

Early treatment of an intruded primary tooth: a case report

Robson Frederico Cunha* / Daniela Maria Carvalho Pugliesi** /

Monique Guimaraes Correa*** / Daniela Marcos Assuiti****

The report is about a case of total intrusion of a deciduous central incisor involving a male patient of 14 months of age. Repositioning of the intruded tooth was performed 20 minutes after the trauma, followed by placement with sutures. Clinical and radiographic monitoring performed after 1, 2, 4, 9, and 13 months showed normal characteristics. We emphasize the development of preventive programs promoting parental awareness of the importance of looking for prompt care, resulting in a better prognosis.

J Clin Pediatric Dent 25(3): 199-202, 2001

INTRODUCTION

Among the lesions that involve the primary dentition, dental traumatic injury is highly frequent. The resilience of alveolar bone in young children causes dental luxations of the intrusive type to be more common than crown fractures.^{1,3}

Intrusive luxation has been defined as a dislocation of the tooth in an axial direction in the alveolar bone.⁴ This dislocation may be complete when the tooth is enveloped by surrounding tissues, or partial when the incisal border of the crown is visible, this being an additional factor that will influence the prognosis of a traumatized tooth.⁵

Traumas of deciduous dentition, which occur in the anterior region, result in luxation in 62 to 69% of cases.^{6,7} With respect to the occurrence of intrusive luxation in deciduous dentition, Andreasen *et al.*⁷ noted that the tooth most frequently involved is the central incisor and the age range most often affected is that from 2 to 4 years. In a sample of 233 traumatized teeth, intrusion was observed in 15 cases (6.4%). According to Ravn,⁸ the most susceptible age is 1 to 3 years, as observed in a sample of 100 intruded incisors. Soporowski *et al.*,⁹ in a survey

of 222 records, observed that most luxations occurred among boys (at a 1.7:1 proportion), the most frequent etiology was a fall and intrusion corresponded to 15.3% of all traumas. Onetto *et al.*¹⁰ analyzed traumatic injuries in primary dentition in 115 teeth, with falls being the most common cause (82%) and intrusion corresponding to 21% of the traumatic injuries. Robertson *et al.*¹¹ conducted a study on 123 traumatized deciduous incisors in which intrusive luxation was the most common event, corresponding to 54% of all cases. In 1998, Borum and Andreasen¹² reported that intrusion corresponds to 8 to 22% of all luxations of deciduous anterior teeth.

Holan and Ram⁵ evaluated the sequelae and prognosis of 172 intruded deciduous incisors; 68% of these teeth were not extracted on the occasion of the first visit and continued to have no complications after 36 months of follow-up, with total reeruption occurring in 88% of these cases.

According to Mackie and Blinkhorn,¹³ a common clinical finding after an intrusive trauma is the disappearance of the tooth inside the alveolar bone, a fact that impairs its visualization, especially due to gingival swelling and blood clots. The child presents no major problems and the tooth usually re-erupts within a period of 1 to 3 months.

Borum and Andreasen¹² conducted a study on 284 children and a total of 545 traumatized deciduous incisors and followed these children up to 10 years of age, with extraction being the only treatment offered when an intervention was necessary. Among the traumas suffered, intrusion represented 16.7% of cases (91 teeth). Among 85 of the intruded teeth, changes in color occurred in 48.2% of cases, obliteration of the pulpal canal occurred in 41.2%, pulp necrosis in 37.6%, and no complications were observed in 11.8%. According to the authors, the age of the child at the time of traumatic injury is very important for the estimate of the risk of pulpal necrosis. Children younger than 1.5

* Dr. Robson Frederico Cunha is an Assistant Professor of Pediatric Dentistry, State University Paulista (UNESP), School of Dentistry, Sao Paulo, Brazil.

** Dr. Daniela Maria Carvalho Pugliesi, private practice in pediatric dentistry in Aracatuba, Brazil.

*** Dr. Monique Guimaraes Correa, private practice in pediatric dentistry in Aracatuba, Brazil.

**** Dr. Daniela Marcos Assuiti, private practice in pediatric dentistry in Aracatuba, Brazil.

Send all correspondence to Dr. Robson Frederico Cunha, Department of Pediatric Dentistry, State University Paulista (UNESP), School of Dentistry, Rua Jose Bonifacio, 1193, 16015-050 Aracatuba, Sao Paulo, Brazil.



Figure 1. Immediate clinical aspect of the traumatized area.



Figure 2. Initial radiographic aspect of the intruded tooth.



Figure 3. Immediate repositioning of the intruded tooth by digital pressure.



Figure 4. Containment of the repositioned tooth by means of suture.

years rarely develop pulpal necrosis although they present the highest frequency of intrusion.

In 1986, Belostoky *et al.*¹⁴ reported a clinical case of total intrusion involving a 10-month-old child. The tooth was an upper deciduous incisor which remained for 11 years between the roots of the permanent incisors, suggesting a diagnosis of mesiodens. On this basis, the authors concluded that when a deciduous tooth suffers a trauma and disappears into alveolar bone (total intrusion) a radiographic examination is imperative for the differential diagnosis between avulsion and intrusion.

In 1989, Ben-Bassat *et al.*¹⁵ presented a study on 124 children who had suffered a trauma in the deciduous incisors and who were evaluated clinically and radiographically after eruption of the permanent teeth. The authors emphasized the importance of access to a multidisciplinary team due to the complexity of the problems a dental surgeon may face after a severe trauma of the deciduous dentition.

Garcia-Godoy *et al.*¹⁶ conducted a study in order to determine for what reasons the parents of the patients

look for treatment after traumatic injury to the deciduous dentition. The samples consisted of 114 children with a total of 196 deciduous teeth affected. When the patients showed dental luxation, the parents looked for treatment because of the clinical situation, i.e., crying and bleeding, and few of them worried about the possible consequences for traumatized deciduous tooth or for their permanent successors. The authors also suggested the creation of a program that would stimulate parents to look for prompt care after dental traumas. The purpose of this report is to present a case of dental traumatism with early intervention.

CASE REPORT

A 14-month-old male patient, M.J.B., was referred to the Baby Clinic of the Dental School of Araçatuba, UNESP, twenty minutes after suffering a dental trauma. The child was in good general health and had no neurological problems. On questioning the parents of the patient about how the trauma occur, it was revealed that he had a fall on floor. As the accident occurred out side, we asked to the parents that child's



Figure 5. Seventh postoperative day.



Figure 6. Radiographic aspect after 7 days.

anti-tetanus status of the child must be ascertained as soon as possible. There is no signs of head injury and trauma to others parts of body.

Intraoral examination revealed the presence of a blood clot in the alveolar region of the upper right deciduous central incisor and extensive laceration of the palatine mucosa (Figure 1). A hardened surface was observed in this area upon palpation. Radiographic examination (Figure 2) showed that tooth 51 had suffered intrusion and lingual luxation.

The patient received local infiltrative anesthesia on the labial and buccal side and the tooth was repositioned in a labial direction by digital pressure (Figure 3). The clot was then removed, revealing the crown of the intruded tooth, the traumatized region was abundantly irrigated with physiological saline, and tissue closure was performed by proximal suture of the tooth involved (Figure 4). When the patient returned after one week for suture removal (Figure 5), the mucosa had almost healed and the tooth was with a mild mobility. Radiographic examination did not show any alterations (Figure 6).

After 1, 2, 4 (Figures 7, 8), 9 and 13 (Figures 9, 10) months, clinical exams and radiographic controls showed no discoloration of dental crown and no pain. Because there is no periapical pathology, treatment is not required, but the monitoring by radiograph will continue.

DISCUSSION

When examining a child, who suffered a dental trauma, the dental surgeon should consider some important details concerning the incident and perform a meticulous examination. One of the major factors that may influence the choice and success of treatment is the time elapsed between trauma and seeking treatment.¹³

In the present case, a very young patient suffered a severe trauma and his parents immediately sought dental treatment. In our opinion, this was the major factor

that determined the success of treatment, allied to an appropriate procedure of dental repositioning and fixation and to the importance of an adequate follow-up time in cases of dental trauma. According to Soporowski *et al.*,⁹ this maneuver relieves apical compression in the traumatized tooth, reducing the possibility of ischemia and favoring possible re-anastomoses, thus reducing the risk of pulp necrosis.

Onetto *et al.*,¹⁰ in a study of 73 patients with traumas of the deciduous dentition, noted that most children (52%) were brought in for treatment only 24 hours after the trauma. This time has a decisive effect on the prognosis of the traumatized tooth and is strongly associated with the educational and awareness level of the parents with respect to oral care. Early attendance for care (up to 2 hours) were avulsion, laceration and luxation with displacement, probably because these injuries could interfere with occlusion as well as due to bleeding.¹⁷

Few parents are well informed about the possible consequences of a dental trauma both in terms of the deciduous and the permanent dentition. This shows the need to develop educational programs that will stimulate parents to seek immediate treatment after the occurrence of a dental trauma since, as shown in the present report, this conduct and the appropriate professional intervention were responsible for the successful outcome. These programs should be extended to professors and nurses, who in turn should inform and guide the parents about the importance of prompt care.^{10,16}

In our case, we believed that the time elapsed between dental trauma and seeking treatment was an important factor for the establishment of a prognosis and for a successful treatment.

REFERENCES

1. Bennett DT. Traumatized anterior teeth. *Brit Dent J* 116: 52-55, 1964.
2. Joho JP, Marechaux SC. Trauma in the primary dentition; a clinical presentation. *J Dent Child* 47: 167-174, 1980.



Figures 7 and 8. Clinical and radiographic aspects after 4 months.



Figures 9 and 10. Clinical and radiographic aspects after 13 months.

3. Taintor JF, Bonness BW, Biesterfeld RC. The intruded tooth. *Dent Surv* 55: 30-34, 1979.
4. Andreasen JO. *Lesiones Traumáticas de los dientes*. 3rd Ed. Munksgard, Copenhagen, 1984.
5. Holan G, Ram D. Sequelae and prognosis of intruded primary incisors: a retrospective study. *Pediatr Dent* 21: 242-247, 1999.
6. Andreasen JO. Etiology and pathogenesis of traumatic dental injuries. *Scand J Dent Res* 78: 329-42, 1970.
7. Andreasen JO, Ravn JJ. Epidemiology of traumatic dental injuries to primary and permanent teeth in a Danish population sample. *Int J Oral Surg* 1: 235-39, 1972.
8. Ravn JJ. Developmental disturbances in permanent teeth after intrusion of their primary predecessors. *Scand J Dent Res* 84: 137-141, 1976.
9. Soporowsky NJ, Allred EN, Needleman HL. Luxations injuries of primary anterior teeth-prognosis and related correlates. *Pediatr Dent* 16: 96-101, 1994.
10. Onetto JE, Flores MT, Garbarino ML. Dental trauma in children and adolescents in Valparaíso, Chile. *Endod Dent Traumatol* 10: 223-227, 1994.
11. Robertson A, Lundgren T, Andreasen JO, Dietz W, Hoyer I, Norén JG. Pulp calcifications in traumatized primary incisors. A morphological and inductive analysis study. *Eur J Oral Sci* 105: 196-206, 1997.
12. Borum MK, Andreasen JO. Sequelae of trauma to primary maxillary incisors. I. Complications in the primary dentition. *Endod Dent Traumatol* 14: 31-44, 1998.
13. Mackie IC, Blinkhorn A. Dental trauma: 1. general history, examination and management of trauma to the primary dentition. *Dental Update* 2: 69-71, 1996.
14. Belostoky L, Orth D, Schwartz Z, Soskolne W A. Undiagnosed intrusion of a maxillary primary incisor tooth: 15-year follow-up. *Pediatr Dent* 8: 294-95, 1986.
15. Ben-Bassat Y, Brin I, Zilberman Y. Effects of trauma to the primary incisors on their permanent successors: multidisciplinary treatment. *J Dent Child* 56: 112-116, 1989.
16. Garcia-Godoy F, Garcia-Godoy F, Garcia-Godoy FM. Reasons for seeking treatment after traumatic dental injuries. *Endod Dent Traumatol* 5: 180-181, 1989.
17. Lombardi SM, Sheller B, Williams BJ. Diagnosis and treatment of dental trauma in a children's hospital. *Pediatr Dent* 20: 112-120, 1998.